

Docket No. 3140-25A
Client No. MERL-1197-CIP



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of
YERAZUNIS et al.

Serial No. 09/150,360

Filed: September 9, 1998

For: VIDEO RECORDING DEVICE FOR TARGETING WEAPON

:
: Group Art Unit: 2713
:
: Examiner: V. Le
:
:
:

Honorable Assistant Commissioner
for Patents
Washington, DC 20231

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20231

on August 7, 2000
Lisa E. Naughton
Signature

Sir:

An Appeal Brief is submitted herewith in triplicate, in support of the Notice of Appeal filed June 7, 2000. A check for the Appeal Brief fee, in the amount of \$300.00, is enclosed.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment, to Deposit Account No. 12-0429, including any patent application processing fees under 37 CFR 1.17.

Respectfully Submitted,
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APPEAL BRIEF

Honorable Assistant
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on August 7, 2000
Lisa E. Daugherty
Signature

Sir:

This Appeal Brief is submitted in support of the Notice of
Appeal filed June 7, 2000.

I. REAL PARTY IN INTEREST

Mitsubishi Electric Information Technology Center America,
INC.

II. RELATED APPEALS AND INTERFERENCES

NONE

III. STATUS OF CLAIMS

Claims 1-40 are pending. Each of claims 1-40 is under
appeal.

IV. STATUS OF AMENDMENTS

An Amendment was filed on December 14, 1999, and has been entered.

V. SUMMARY OF INVENTION

The invention claimed in the present application is a compact data recording device or method. In a preferred embodiment the device is mountable to a gun for recording video images along a target line before and after the firing of the gun (see generally the Abstract, and Figures 9, 10, 11 and 12).

In general, and with reference to Figure 3, the recording device preferably includes a camera 40, comprised of a lens 44 and an image sensor 46 (page 8, lines 26-34), an analog to digital converter 48 and support electronics 52 (page 3, line 35 to page 9, line 12), a central processor 54 (page 9, lines 25-33) executing program steps stored in ROM 64 (page 10, lines 11-13) to store video image data in DRAMs 58 and 60 (page 9, line 34 to page 10, line 10). The central processor 54 is provided with a number of inputs 70-78, including an event sensor 70 (page 10, lines 13-15), and a serial output channel 78 (page 10, lines 18-23) which permits stored video images to be downloaded to an external video device for viewing.

With reference to Figure 14, the exemplary embodiment of the device particularly adapted for use with a gun further comprises an enable sensor 50, which allows the recording device to be activated automatically when the gun is removed from the user's holster (page 26, line 35 to page 27, line 32), a non-volatile memory 83 to avoid battery drain when the video recording device is not recording (page 30, lines 15 to page 31, line 1), a date/time clock 84 coupled to a character generator 85 to time and data stamp the video data (page 32, lines 3-10), and a microphone 86 and A/D converter 87 to add an audio track to the captured video images (page 32, line 34 to page 33, line 8).

The method for recording data, as recited in claim 1 and with reference to Figure 5 includes repeatedly storing video image data within a semiconductor memory within a video recording

device mounted to [a] weapon; sensing at least one discharge of said weapon with a weapon discharge sensor output signal; and in response to the detection of said weapon discharge sensor output signal, preserving in said semiconductor memory within said video recording device, video image data corresponding generally to an area surrounding [a] target line and corresponding to at least some of said video image data stored proceeding and subsequent to the weapon discharge sensor output corresponding to said at least one firing of said weapon.

As described at page 11, line 11 to page 12, line 23, and with reference to Figure 4, the semiconductor memory 58 may be structured as a circular memory buffer. The video recording device, absent receipt of some trigger event from sensor 54 or activation of other input by the user, continues to capture frame data in successive locations of the circular buffer, over-writing previously received frame data stored in respective buffer locations with the most recently received frame data. The semiconductor memory buffer is sized as to permit a desired number of frames to be concurrently stored in the buffer.

As explained at page 12, line 24, through page 13, line 31, upon detection of a trigger event, existing frame data beneficially ceases to be overwritten while frames continue to be stored in subsequent frame locations of the buffer. Following the recording of a predetermined number of additional frames after the triggering event, and typically after the buffer becomes full, the video recording device ceases to record further frame data and the data in the buffer, which represents frame data from both before and after the triggering event, are preserved.

In one preferred embodiment it is envisioned that the semiconductor memory will support the storage of 5 frames of video data per second for approximately 30 seconds. If it is desired to have the same number of frames before and after detection of a triggering event from sensor 70, 75 frames could be recorded and stored in the circular buffer before the triggering event, and seventy-five afterwards, (page 13, line 32

to page 14, line 14).

Claim 16 is an independent apparatus claim. In addition to the limitations corresponding to those of claim 1, discussed above, claim 16 recites a weapon discharge sensor operative to generate a weapon discharge sensor output (see page 13, lines 1-16); at least one semiconductor memory (page 9, lines 34 to page 10, line 10); a video camera (page 8, lines 26-34); and a controller operative to cause the storage of digital data representative of video image data within the semiconductor memory at predetermined times before and after generation of the weapon discharge output signal, and to preserve selected digital data in the semiconductor memory in response to the weapon discharge sensor output signal (page 9, lines 25-33).

Claims 2-15 and 17-35, which depend from base claims 1 and 16, recite other disclosed features of the invention.

For example, claims 2 and 17 require that the weapon is a gun (see, for example, Figures 9-12).

Claims 3 and 19 require that the weapon discharge sensor comprises an accelerometer coupled to the data recording device (page 13, line 5).

Claims 4 and 20 recite that the weapon discharge sensor may be a microphone (page 28, lines 7-12).

Claims 5 and 20 require that the weapon includes a trigger and the weapon discharge sensor comprises a switch coupled to the trigger (page 28, lines 12-18).

Claims 6 and 7 require preserving within the semiconductor memory, video image data corresponding to at least one frame stored prior to each discharge sensor output signal and at least one frame subsequent to the respective discharge sensor output signal. This refers to the capability of the claimed invention to record before and after video data for a succession of triggering events (e.g. page 28, lines 19 to page 29, line 20).

Claims 8 and 23 require storing and preserving video data associated with each discharge of the weapon in a portion of the semiconductor memory assigned for the respective discharge (e.g. page 29, lines 3-6).

Claim 9 requires that the portion set aside for each successive discharge under claim 8, be smaller than the portion associated with the prior discharge (e.g. page 28, line 31 to page 29, line 12).

Claim 10 requires generating an audio signal with a microphone electrically coupled to the video recorder, sampling and converting the audio signal from the microphone with an analog to digital converter and storing in the semiconductor memory at least some of the digital data extending temporally around each discharge of the weapon. Claim 11 further requires employing a non-linear quantization technique for representing the stored audio data (e.g. page 32, line 34 to page 33, line 8).

Claims 12 and 31 require generating a signal with a holster state sensor having a first state when the weapon is within the holster and a second state when the weapon is not within the holster, and storing video data only when the holster sensor is in the second state (e.g. page 26, line 35 to page 27, line 32).

Claims 13 and 14 require reading selected data from the semiconductor memory in response to each weapon discharge sensor output signal, writing the selected data into a second non-volatile semiconductor memory, and preserving it in the non-volatile memory at least until the video data is read from the non-volatile memory in response to a user providing a valid password (page 30, line 15 to page 31, line 1, and page 31, lines 26-31).

Claims 15 and 31 require storing data and time information within the semiconductor information in association with at least some of the video image data (e.g. page 32, lines 3-10).

Claim 22 requires the controller in the recording device to store video data within the at least one semiconductor memory periodically (e.g. page 18, lines 27-33).

Claim 24 requires the recording device to include at least one DRAM in the at least one semiconductor memory (e.g. page 30, lines 7-14).

Claim 26 requires the non-volatile memory of claim 25 to comprise at least one flash memory; claim 27 requires it to

comprise at least one bubble memory; and claim 28 requires it to comprise an electronically erasable programmable random access memory (e.g. page 30, line 33 to page 31, line 1).

Claims 29 and 30 require the controller of the recording device to include a bi-directional interface for reading out the contents of the semiconductor memory in response to a user request including a password, where the bidirectional interface may be a serial bidirectional interface (e.g. page 31, line 26 to page 32, line 2).

Claim 32 requires that the enable sensor of claim 31 comprise a switch; claim 33 requires that the sensor comprise a magnetically actuatable switch; and claim 34 requires that the magnetically actuatable switch comprise a reed switch (e.g. page 26, lines 11-30).

Claims 37 and 38 depend from claim 36 and recite features regarding transfer of data from the memory to the non-volatile memory, that are discussed above.

Claim 39 requires the element of the recording device to be incorporated in a portable housing (e.g. Figure 10 and page 25, lines 27-34).

Finally, claim 40 requires that the recording device further comprise a weapon, and that the triggering event is the firing of the weapon, both of which are discussed above.

VI. ISSUES

Whether claims 1-2, 6-7, 16-18 and 36-40 are obvious over Chang (U.S. Patent No. 5,342,054), in view of Black (U.S. Patent No. 4,835,621).

Whether claims 3-5, 19-22 and 24-30 are obvious over the base combination in further view of McMahan (U.S. Patent No. 5,845,165).

Whether claims 8-11 and 13 are obvious over the base combination in further view of Fielder (U.S. Patent No. 5,845,240).

Whether claims 12, 15 and 31-35 are obvious over the base combination in further view of Scerbo (U.S. Patent No. 5,546,124).

Whether claim 14 are obvious over the base combination in further view of Fielder and Scerbo.

Whether claim 23 is obvious over the base combination in further view of McMahan and Fielder.

Whether claims 29-30 are obvious over the base combination in further view of Scerbo and Hashimoto (U.S. Patent No. 5,815,205).

VII. BRIEF DESCRIPTION OF THE REFERENCES

The Chang et al. patent is directed to a golf practice apparatus that provides recording and instant playback of video images of a golfer's swing. A video processing and storage unit digitally stores images in memory from a plurality of video cameras for instant replay. Image processing and recording begins automatically when a golf ball is placed in a designated hitting area. An IR camera and an IR flash unit take snapshot images of a club head and ball just before and just after the golf club hits the ball. An optical sensor array is positioned adjacent to the hitting area to detect the passage of the club toward the ball. The signals generated by the optical sensor array are employed by the image processing and storage unit to both calculate club speed and control triggering of the IR flash unit. A video tape recorder can also be provided to record the video images both as they are obtained by the cameras and as they are played back by the video processing and storage unit.

The Black patent is directed to a video recording device having a gunstock and support structure on which a hand-held video camera recorder, using videotape, can be mounted. The camera recorder has a lens structure that defines a line of sight for the device, and a video monitor and a viewfinder mounted to the gunstock. A gun sight is located in the line of sight so as to be visible through the viewfinder when the video camera recorder is recording. Part of the gunstock structure is adapted

to allow the user to conveniently activate the on/off switch of the video camera for sequentially starting and stopping the recording. A trigger is provided on the gunstock to activate a light visible through the viewfinder when the trigger is pulled. The light is also simultaneously recorded on the videotape. While the recording device of Black is "gun-like", it is not a weapon that discharges when the trigger is pulled.

The Fielder patent is directed to a recording method and apparatus that enables a user to select for recall and preservation portions of audio, video or other data that have been recorded on a recording medium of finite length, thereby allowing the recording and reproduction of events occurring before the decision to record or reproduce them is made. The disclosed embodiment is an audio data recorder that stores audio signals sequentially in digital form in a circular series of input buffers. The user is given the ability to capture the whole or any portion of the data in the circular input buffers before the data is overwritten with new input data.

The Scerbo patent is directed to a handgun holster on which an audio and/or video recorder is mounted and secured, and which has a holster-mounted recorder activation switch. The switch is configured to activate the recorder upon removal of the handgun from the holster, which remains activated until the handgun is returned to the holster.

The McMahan patent is directed to a rifle-style camera powered by an internal power supply, capable of producing at least one of a photograph on film and a digital image of an object. The digital image is captured and stored in an internal memory device. An eyepiece and viewfinder are mounted on the top side of the barrel and connected to both the photographic and digital cameras. A single photographic and digital picture is taken when a trigger shutter release, mounted to the bottom of the barrel, is activated.

The Hashimoto et. al. patent is directed to an electronic camera that detachably connects to a communications interface, which allows the camera to communicate to an external electronic

device such as a personal computer.

VIII. THE REJECTION

In the Final Office Action dated March 7, 2000, the Examiner rejected all of the pending claims. Claims 1-2, 6-7, 16-18 and 36-40 stand rejected under 35 USC § 103(a) as obvious over Chang (U.S. Patent No. 5,342,054), in view of Black (U.S. Patent No. 4,835,621). Claims 3-5, 19-22 and 24-30 stand rejected as obvious over the base combination in further view of McMahan (U.S. Patent No. 5,845,165). Claims 8-11 and 13 stand rejected as obvious over the base combination in further view of Fielder (U.S. Patent No. 5,845,240). Claims 12, 15 and 31-35 stand rejected as obvious over the base combination in further view of Scerbo (U.S. Patent No. 5,546,124). Claim 14 stands rejected as obvious over the base combination in further view of Fielder and Scerbo. Claim 23 stands rejected as obvious over the base combination in further view of McMahan and Fielder. Claims 29-30 stand rejected as obvious over the base combination in further view of Scerbo and Hashimoto (U.S. Patent No. 5,815,205).

In an Advisory Action dated May 15, 2000, replying to a Request for Reconsideration dated April 28, 2000, the Examiner maintained the final rejection of all claims stating that the issues raised in the Request had been previously considered and answered.

IX. GROUPING OF CLAIMS

The various claimed embodiments of the invention are defined within groupings of claims (i) 1-15, (ii) 16-35, and (iii) 36-40. However, the claims of each group do not stand or fall together. Claims 1-2, 6, 8-11, 13-14, 16-18, 23, 25, 33-34 and 36-40 each recite features which form an independent basis for allowance.

X. ARGUMENT

Appellants respectfully traverse the rejections based on prior art applied against the claims now pending on appeal. As discussed below, it is respectfully submitted that the Examiner

has not met the burden of proof in establishing that the appealed claims are obvious. It is further respectfully submitted that the rejection fails to provide the required factual basis or even a reasonable rationale for the rejections, and fails to apply art that teaches or suggests the claimed invention.

1. THE EXAMINER HAS FAILED TO ESTABLISH A PRIMA FACIE CASE

The initial burden of establishing a basis for denying patentability to a claimed invention rests upon the examiner. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985); In re Piasecki, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984).

The Examiner must provide sufficient factual basis or rationale as to how features of the invention recited in the claims are taught or suggested in the applied art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). The limitations required by the claims cannot be ignored. See In re Wilson, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970). No claim limitation, including one which is functional, can be ignored. See In re Oelrich, 666 F.2d 578, 212 USPQ 323 (CCPA 1981). All words in a claim must be considered in deciding the patentability of that claim against the prior art.

Each word in a claim must be given its proper meaning, as construed by a person skilled in the art. Where required to determine the scope of a recited term, the disclosure may be used. See In re Barr, 444 F.2d 588, 170 USPQ 330 (CCPA 1971).

Further, MPEP §706.07 clearly requires that "before final rejection is in order a clear issue should be developed between the Examiner and applicant." Indeed, the Manual states that "the references should be fully applied" (emphasis added), so as to deal justly with the applicant as well as the public. The Manual goes on to state, "present practice does not sanction hasty and ill-considered final rejections". "The applicant who is seeking to define his or her invention in claims that will give him or her the patent protection to which he or she is justly entitled should receive the cooperation of the examiner to that end."

"The examiner should never lose sight of the fact that in every case the applicant is entitled to a full and fair hearing, and that a clear issue between applicant and examiner should be developed, if possible, before appeal."

In the Final Official Action dated March 7, 2000, the Examiner rejected claims 1-2, 6-7, 16-18 and 36-40 under 35 U.S.C. § 102(a) as being obvious over Chang in view of Black "for the same reasons as set forth in the last Office Action, Paper No. 3."

The Examiner ignores however, the fact that claims 36-40 were added by an Amendment submitted in response to, and hence after, the Examiner's Paper No. 3.

It is respectfully submitted that the Examiner's rationale for rejection of claims 1-2, 6-7 and 16-18 in Paper No. 3 does not properly apply to claims 36-40. Claims 36-40 recite features that do not appear in claims 1-2, 6-7 and 16-18 and which, Applicants respectfully submit, are patentably distinguishable. For example, claim 36 requires a memory configured to store at least one of audio and video data such that the later stored data is recorded over previously stored data; a non-volatile memory; and a controller configured to transfer the data stored in the memory to the non-volatile memory (emphasis added). These features are not discussed at all by the Examiner in the Final Office Action, nor in the earlier rejection of claims 1-2, 6-7 and 16-18 in Paper No. 3.

Hence, it is apparent that the Examiner has failed to provide a reasonable rationale for rejection of claims 36-40 based on the application of the prior art to these claims, and hence has failed to comply with the requirements of MPEP 706.07. Because of this Examiner's failure to comply with the requirements of MPEP 706.07, the Examiner has not established a prima facie basis for the rejection of the claims in the Final Official Action.

2. THE APPLIED REFERENCES FAIL TO SUGGEST THE CLAIMED INVENTION

In rejecting claims under 35 U.S.C. 103, it is incumbent upon

the Examiner to establish a factual basis to support the legal conclusion of obviousness. Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); In re Warner, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967). It also is incumbent upon the Examiner to provide a basis in fact and/or cogent technical reasoning to support the conclusion that one having ordinary skill in the art would have been motivated to combine references to arrive at a claimed invention. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). In so doing, the Examiner is required to make the factual determinations set forth in Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 148 USPQ 459 (1966), **and** to provide a reason why one having ordinary skill in the art would have been led to modify the prior art reference to arrive at the claimed invention. Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985). Such a reason must stem from some teaching, suggestion or inference in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.d 281, 227 USPQ 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 USPQ 929 (Fed. Cir. 1984); In re Sernaker, 702 F.2d 989, 217 USPQ 1 (Fed. Cir. 1983). Inherency requires certainty, not speculation. In re Rijckaert, 9 F.3rd 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986); W. L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983); In re Oelrich, 666 F.2d 578, 212 USPQ 323 (CCPA 1981); In re Wilding, 535 F.2d 631, 190 USPQ 59 (CCPA 1976). Objective evidence must be relied upon to defeat the patentability of the claimed invention. Ex parte Natale, 11 USPQ2d 1222 (BPAI 1988).

In determining obviousness, the inquiry is not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed. Hartness Int'l, Inc. v. Simplimatic Eng'g Co., 819 F.2d

1100, 2 USPQ2d 1826 (Fed. Cir. 1987). It is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. In re Wesslau, 353 F.2d 238, 147 USPQ 391 (CCPA 1951). Piecemeal reconstruction of prior art patents is improper, In re Kamm, 452 F.2d 1052, 172 USPQ 298 (CCPA 1972). The Examiner must give adequate consideration to the particular problems and solution addressed by the claimed invention. Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 15 USPQ2d 1321 (Fed. Cir. 1990); In re Rothermel, 276 F.2d 393, 125 USPQ 328 (CCPA 1960).

The fact that the prior art could be modified so as to result in the combination defined by the claims does not make the modification obvious unless the prior art suggests the desirability of the modification. In re Deminski, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986). The test is what the combined teachings would have suggested to those of ordinary skill in the art. In re Keller, 642 F.2d 413, 208 USPQ 817 (CCPA 1981). Simplicity and hindsight are not proper criteria for resolving obviousness, In re Warner, supra. The proper approach to the issue of obviousness is whether the hypothetical person of ordinary skill in the art, familiar with the references, would have found it obvious to make a structure corresponding to what is claimed. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Sernaker, 702 F.2d 989, 217 USPQ 1 (Fed. Cir. 1983). Hindsight obviousness after the invention has been made is not the test. In re Carroll, 601 F.2d 1184, 202 USPQ 571 (CCPA 1979). The reference, viewed by itself and not in retrospect, must suggest doing what applicant has done. In re Shaffer, 229 F.2d 476, 108 USPQ 326 (CCPA 1956); In re Skoll, 523 F.2d 1392, 187 USPQ 481 (CCPA 1975).

The issue is not whether it is within the skill of the artisan to make the proposed modification but, rather, whether a person of ordinary skill in the art, upon consideration of the references, would have found it obvious to do so. The fact that

the prior art could be modified so as to result in the combination defined by the claims would not have made the modification obvious unless the prior art suggests the desirability of the modification. See In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984), In re Deminski, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986), In re Keller, supra. See In re Laskowski, F2d., 10 USPQ2d 1397 (CAFC 1989).

Claims 1-2, 6-7, 16-18 and 36-40 stand rejected under 35 USC § 103(a) as obvious over Chang (U.S. Patent No. 5,342,054), in view of Black (U.S. Patent No. 4,835,621). Claims 3-5, 19-22 and 24-30 stand rejected as obvious over the base combination in further view of McMahan (U.S. Patent No. 5,845,165). Claims 8-11 and 13 stand rejected as obvious over the base combination in further view of Fielder (U.S. Patent No. 5,845,240). Claims 12, 15 and 31-35 stand rejected as obvious over the base combination in further view of Scerbo (U.S. Patent No. 5,546,124). Claim 14 stands rejected as obvious over the base combination in further view of Fielder and Scerbo. Claim 23 stands rejected as obvious over the base combination in further view of McMahan and Fielder.

Claims 29-30 stand rejected as obvious over the base combination in further view of Scerbo and Hashimoto (U.S. Patent No. 5,815,205). As discussed below, it is respectfully submitted that the Examiner has not met the burden of proof in establishing the obviousness of the appealed claims.

In the Final Official Action, the Examiner reiterates the arguments presented in the earlier Official Action dated September 15, 1999, in support of the rejections. First, it is respectfully noted that Chang is directed to non-analogous art. MPEP §2141.01(a), first paragraph, states, "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor, or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned."

Chang is directed to a golf practice apparatus for obtaining and storing data of a golfer's swing which can be reviewed for analysis by the golfer. The present application is directed to a

compact video image recording device which is mountable to a gun and useful for recording video images before and after the firing of the gun, and thus in an entirely different art area than to that of Chang.

Chang is also directed to an entirely different problem (i.e. analyzing a golfer's swing for the purpose of improving his or her swing) as compared to the problem being solved by the present application (i.e. preserving video image data representative of a video image corresponding to an area generally surrounding the target line of a weapon), and discloses a technique for solving the problem to which it is directed which is substantially different from the invention claimed in the present application. Chang is therefore neither in the field of the present application, nor is it reasonably pertinent to the particular problem with which the present application is concerned. Consequently, Chang fails to qualify as prior art under MPEP 2141.01(a).

Even assuming that Chang qualifies as prior art (which the Applicants do not admit), the claims of the present invention are never the less distinguishable over Chang.

For example, the Examiner points to Chang (column 2, lines 32-41) "repeatedly storing video image data within a semiconductor memory within a recording device" (emphasis added).

As recited in claim 1. However, it is respectfully submitted that Chang does not teach repeatedly storing video image data "within a recording device". Instead, the storage of video image data in Chang is accomplished by a video image processing and storage system located outside of the video cameras that provide signals to the video image processing and storage system (Figure 1, items 32, 24 and 28, and column 3, lines 49-53).

The Examiner admits that Chang does not disclose "a video recording device mounted to a weapon", as recited in claim 1, but points to Black as teaching this limitation. However, what Black discloses is a handheld video camera (column 4, lines 10-15), which uses video cassette tape to record video images and does not use semiconductor memory to store video image data (see, for

example, column 7, lines 28-31). Therefore, Black does not teach or suggest "repeatedly storing video image data within a semiconductor memory within a video recording device mounted to [a] weapon", as recited in claim 1, and hence does not cure the defect in Chang.

Even assuming that one skilled in the art attempted to combine Chang and Black in the manner suggested by the Examiner, the resulting combination would be inoperative. This is due to the size of the video processing and storage unit of Chang, which is essentially the size of a large desktop computer (Figure 1, element 32, and Figure 2, column 4, lines 18-21). If the cameras and the video processing and storage unit of Chang were somehow mounted to the rifle stock of Black, the recited elements of Chang would so weigh down the invention of Black that it would be virtually impossible to use.

In response to the preceding argument, the Examiner asserts, in the Response to Remarks section of the Final Official Action, that advances in technology since Black was patented in 1989, would make the choice of semiconductor memory obvious to one skilled in the art. It is respectfully submitted that the Examiner's argument is an exercise in the use of hindsight to reject the claimed invention as obvious. The Examiner fails to offer any teaching or suggestion in a prior art reference to demonstrate what is asserted to have been obvious to one skilled in the art at the time the invention was made.

The Examiner further points to column 7, lines 15-16, and column 6, lines 3-12 of Chang as disclosing "sensing at least one discharge of [a] weapon with a weapon discharge sensor and in response to each respective discharge of said weapon generating a weapon discharge sensor output signal", as recited in claim 1. The Examiner admits in Paper No. 3, the earlier Official Action, that Chang teaches a system and method for use in analyzing a golfer's swing, and is not disclosed as usable in monitoring the events surrounding the discharge of a weapon. However, argues the Examiner, the event at which the golf ball is struck, and sensed by the optical and infra-red (IR) sensors of Chang (Figure

1, items 16 and 30) are analogous to the event of the firing of a weapon and detecting the discharge with sensors.

To carry the Examiner's analogy, as best understood, to its logical conclusion, a golf club would constitute a weapon, and the event at which the golf club strikes the ball would suggest sensing a bullet hitting the target. In that case, it is respectfully submitted Chang's optical and IR sensors do not suggest the "weapon discharge sensor" and the "weapon discharge sensor output signal" of claim 1.

If on the other hand, the Examiner is drawing an analogy to the golf club as the weapon and the golf ball as the bullet, then Chang fails to teach or suggest "video image data corresponding generally to an area surrounding the target line", as recited in claim 1. In Chang, the system records video images of the golfer's swing in and around the tee area (see, for example, Figure 1). There is no suggestion that the cameras follow the ball to its target.

Furthermore, Black does not cure the defects of Chang, as Black fails to teach or suggest the preserving of video image data "in response to the detection of [a] weapon discharge output signal", as required by claim 1. Although, as best understood, Black includes, in one embodiment, a light that appears in the video frame when the trigger is pulled (see, for example, Figure 10 and column 6, lines 12-26), the signal does not affect the recording of video data, as the user is required to turn on the camera manually when it is desired to record information (column 7, lines 28-31).

Independent claim 16, is directed to a data recording device for preserving video image data representative of a video image corresponding to an area generally surrounding the target line, and comprising *inter alia*, a weapon discharge sensor, at least one semiconductor memory, and a controller operative to cause the storage of digital data representative of the video image data within the semiconductor memory, and further, to preserve selected digital data in response to the weapon discharge sensor output signal. It should be clear from the preceding discussion

that claim 16 also patentably distinguishes over the applied art references taken individually or in combination.

Furthermore, independent claim 36 recites a memory for storing at least one of audio and video data such that later stored data is recorded over previously stored data and a controller configured to transfer the data stored in the memory to a non-volatile memory based upon the detection of the occurrence. It is respectfully submitted that the applied art lacks any teaching or suggestion whatsoever of such a controller. Chang discloses the capability of transferring the stored video images from each golf swing to VCR 40 (see Figure 1), not a non-volatile semiconductor memory. Moreover, the transfer to videotape takes place at the user's instruction, and not "based on the detection of the occurrence by the sensor" (see, for example, column 12, lines 51-54). Accordingly, it is respectfully submitted that claim 36 also patentably distinguishes over the applied art taken individually or in any combination.

Other features recited in the dependent claims are believed to further and independently distinguish over the applied art references.

For example, claims 2 and 17 recite that the weapon comprises a gun. The Examiner points to Figure 1 of Black as showing a gun. However, a careful reading of Black reveals that the invention in Black is a "gun-like" structure on which a video camera recording device can be mounted and raised to the shoulder and sighted on an object in the same way that a gun is usually aimed (see, for example, column 1, lines 58-62). It is respectfully submitted that Black lacks any teaching of a weapon, in the normal meaning of the word, or a sensor to sense the discharge of a weapon, as recited in the base claims.

Claims 6 and 18 require that in response to each one of multiple discharge sensor output signals video image data corresponding to at least one frame before and one frame after the applicable signal be preserved. The Examiner relies on Chang's teachings in column 7, lines 27-46, and column 10, line 51, through column 11, line 22, as disclosing this feature.

However the referenced text relates to only a single event occurrence, not to each one of multiple occurrences and hence each of multiple discharge sensor output signals. As can best be understood, Chang lacks any capability of preserving video image data relating to multiple events in the described circular buffer.

Claim 8 requires that the video image data associated with each discharge of the weapon be stored in a portion of the memory assigned for that discharge and preserving selected video image data associated with each such discharge. The Examiner relies on Fielder as disclosing such a feature. More particularly, the Examiner points to the disclosure in column 4, lines 21-49 and Figure 2 in support of the rejection.

However, the referenced text simply discloses multiple circular buffers in which data can be stored sequentially such that when a first buffer is full, data is stored in a second buffer. Fielder makes no suggestion of an association between the respective circular buffers and respective events. Accordingly, the proposed combination of Chang, Black and Fielder would result in multiple sequential buffers in which data would be stored in one buffer until that buffer was full before proceeding to store data in a further buffer. Also lacking from the proposed combination is any suggestion in the applied art that smaller portions of memory are associated with later discharges as required by claim 9.

With respect to claims 10 and 11, the Examiner contends that Fielder's disclosure in column 4, lines 34-39, and column 5, line 63, through column 6, line 9, makes obvious the combined audio and video recording as recited in claim 10.

It is first respectfully submitted that there is nothing in the proposed combination to suggest combined audio and video recording temporally around the discharge of a weapon. Further, the referenced text lacks any suggestion that the digital data is stored in a semiconductor memory employing a non-linear quantization technique. The Examiner contends that the use of

such a technique to store such data is inherent, but provides no rationale whatsoever supporting this conclusion.

Claim 13 requires that the stored video image data be read from a first semiconductor memory and written to a second non-volatile semiconductor memory. The Examiner points to column 5, line 63, through column 6, line 8, of Fielder as teaching such a second semiconductor memory. The Examiner further takes official notice that Fielder's memory could be non-volatile and that it would be obvious to make Fielder's memory non-volatile in order to preserve the data in the event of a lack of power.

First, the Examiner's contention that Fielder's memory could be made non-volatile is purely speculative. There is nothing whatsoever to suggest that Fielder's could be, let alone should beneficially be, made non-volatile. Rather, as discussed in column 4, lines 50-54, the acquisition buffer records are only stored temporarily for recording playback and transfer to permanent storage. Hence, Fielder at best suggests there is no need to make the acquisition buffers non-volatile. Once again, the rejection lacks support by the Examiner in the official notice.

With regard to claim 14, the Examiner admits that Chang as modified by Black and Fielder does not teach the use by the user of a password to read stored video image data from the non-volatile semiconductor memory. However, the Examiner points to Scerbo, at column 6, lines 35-44 as teaching the use of codes, or passwords, in order to gain access to video data which has been stored in a recording medium. However, the referenced text relates to intermittent alternate code-locking and unlocking a recording substrate detachable within the space. As best understood, this means that the security codes are used to prevent unauthorized removal of the recording medium, and have nothing to do with reading the data on the medium through an interface. Hence, it is respectfully submitted that Scerbo does not cure the defect in the base combination in view of Fielder.

As should be clear for reasons discussed above, limitations recited in claims 23 and 25-28, also include features which patentably distinguish over the applied art.

Claims 29 and 30 require that the controller include a bi-directional communications interface and be operative, in response to receipt of a read command having a specified password, to transmit the preserved digital data. The Examiner relies on Scerbo for disclosing such a controller, particularly pointing to column 6, lines 35-44.

However, the referenced text relates to intermittent alternate code-locking and unlocking of the recording substrate to allow the substrate to be inserted and removed from the space, and clearly lacks any teaching of a controller which requires a read command having a specified password before transmitting preserved data from the memory.

Claims 33-44 require a magnetically actuatable switch. The Examiner relies on Scerbo as disclosing a switch. While recognizing that Scerbo lacks any teaching or suggestion of a magnetic switch as required by the applicable claims, the Examiner contends in Paper No. 3 that it would be obvious to substitute a magnetic switch for Scerbo's mechanical switch to "increase the reliability of the sensor by eliminating troublesome mechanical switching contacts".

However, there is no suggestion within Scerbo that a magnetic rather than mechanical switch could be, let alone should advantageously be, used. The Examiner provides no support for the contention that Scerbo's disclosed mechanical switching contacts would be considered troublesome and, even if such contacts were considered troublesome, why the use of a magnetically actuatable switch in Scerbo's holster arrangement would provide greater reliability.

Claims 37-40 depend from claim 36, and are rejected by the Examiner as obvious over the base combination of Chang and Black.

As should be understood from the foregoing discussion, claims 37-40 are patentably distinguishable over the applied art combination.

CONCLUSION

It is respectfully submitted that the Examiner has (i) failed to establish a prima facie case for the rejection, (ii) ignored features recited in the rejected claims, (iii) failed to apply art which teaches or suggests, the claimed invention and (v) has applied art in a manner inconsistent with its teachings.

Thus, it is respectfully submitted that the rejection under 35 USC § 103(a) of claims 1-2, 6-7, 16-18 and 36-40 as obvious over Chang (U.S. Patent No. 5,342,054), in view of Black (U.S. Patent No. 4,835,621), of claims 3-5, 19-22 and 24-30 as obvious over the base combination in further view of McMahan (U.S. Patent No. 5,845,165), of claims 8-11 and 13 as obvious over the base combination in further view of Fielder (U.S. Patent No. 5,845,240), of claims 12, 15 and 31-35 as obvious over the base combination in further view of Scerbo (U.S. Patent No. 5,546,124), of claim 14 as obvious over the base combination in further view of Fielder and Scerbo, of claim 23 as obvious over the base combination in further view of McMahan and Fielder, and of claims 29-30 as obvious over the base combination in further view of Scerbo and Hashimoto (U.S. Patent No. 5,815,205), are improper.

In summary, Applicants respectfully submit that the applied references, taken either individually or in the combinations suggested by the Examiner, do not disclose or suggest features recited in rejected claims 1, 6 and 36, upon which all other pending claims depend. It is further respectfully submitted that the applied references also fail to disclose numerous other features recited in the pending dependent claims. Furthermore, the applied references fail to teach the specific advantages achieved by the claimed invention. Accordingly, it is submitted that the applied art does not provide any teaching, or suggestion within its teachings, which would lead to the features or advantages of the instant invention, and the claims patentably define over the art.

The rejection of claims 1-40 under 35 U.S.C. §103(a) is in error and reversal is clearly in order and is courteously

solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 12-0429 and please credit any excess fees to such deposit account.

Respectfully submitted,

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APPENDIX

CLAIMS ON APPEAL

1. A method for recording data in response to the firing of a weapon along a target line, comprising the steps of:

sensing at least one discharge of said weapon with a weapon discharge sensor and in response to each respective discharge of said weapon, generating a weapon discharge sensor output signal;

repeatedly storing video image data within a semiconductor memory within a video recording device mounted to said weapon;

in response to the detection of said weapon discharge sensor output signal, preserving in said semiconductor memory within said video recording device, video image data corresponding generally to an area surrounding said target line and corresponding to at least some of said video image data stored preceding and subsequent to the weapon discharge sensor output signal corresponding to said at least one firing of said weapon.

2. The method of claim 1 wherein said weapon comprises a gun.

3. The method of claim 1 wherein said sensing step further comprises the step of sensing the discharge of said weapon with an accelerometer.

4. The method of claim 1 wherein said sensing step further comprises the step of sensing the discharge of said weapon with a microphone.

5. The method of claim 1 wherein said weapon includes a trigger operative to activate a switch and said sensing step further comprises the step of sensing the discharge of said weapon upon the sensing of a change of state of said switch.

6. The method of claim 1 wherein said storing step further comprises the steps of:

repeatedly storing video image data comprising video frames

within the semiconductor memory;

in response to each one of said discharge sensor output signals, preserving within said semiconductor memory, video image data corresponding to at least one frame stored within said semiconductor memory prior to the respective discharge sensor output signal and video image data corresponding to at least one frame stored within said semiconductor memory subsequent to the respective discharge sensor output signal.

7. The method of claim 6 wherein said step of repeatedly storing video image data comprising video frames within said semiconductor memory comprises the step of storing said video frames within said semiconductor memory periodically.

8. The method of claim 6 wherein said storing step comprises the step of storing said video image data associated with each discharge of said weapon in a portion of the semiconductor memory assigned for the respective discharge; and

preserving selected video image data associated with each discharge of said weapon.

9. The method of claim 8 wherein said portion of said semiconductor memory assigned for the storage of video data associated with each successive discharge of said weapon is smaller than the portion associated with the prior discharge of said weapon.

10. The method of claim 1 further comprising the steps of:

generating an audio signal with a microphone electrically coupled to said video recording device, wherein said audio signal is representative of sound within the vicinity of said weapon; and

sampling said audio signal with an analog to digital converter to produce a digital data comprising a digital representation of said audio signal; and

storing within said semiconductor memory at least some of

said digital data extending temporally around each discharge of said weapon.

11. The method of claim 10 further comprising the step of storing said digital data within said semiconductor memory employing a nonlinear quantization technique for the representation of said data.

12. The method of claim 1 further comprising the steps of:

generating a signal with a holster state sensor having a first state when said weapon is within a holster and a second state when said weapon is not within said holster; and

storing said video data within said semiconductor memory only when said holster state sensor signal is in said second state.

13. The method of claim 1 wherein said storing step further comprises the steps of:

repeatedly storing video image data comprising video frames within a first semiconductor memory [from time to time];

in response to each one of said weapon discharge sensor output signals, reading selected video image data from said first semiconductor memory and writing said selected video image data to a second non-volatile semiconductor memory.

14. The method of claim 13 further comprising the step of preserving within said second semiconductor memory, said stored video image data at least until said video image data is read from said second semiconductor memory in response to a request from a user presenting a valid password to said video recording device.

15. The method of claim 1 further comprising the step of storing date and time information within said semiconductor memory in association with at least some of video image data.

16. A data recording device for preserving video image data representative of a video image corresponding to an area generally surrounding the target line of a weapon, comprising:

a weapon discharge sensor operative to generate a weapon discharge sensor output signal upon at least one discharge of said weapon;

at least one semiconductor memory;

a video camera operative to repeatedly generate video image data representative of said video image; and

a controller operative to cause the storage of digital data representative of said video image data within said semiconductor memory at predetermined times both before and after the generation of said weapon discharge output signal;

said controller being further operative to preserve selected digital data stored in said at least one semiconductor memory in response to said weapon discharge sensor output signal.

17. The data recording device of claim 16 wherein said weapon comprises a gun.

18. The data recording device of claim 16 wherein said controller is operative to preserve at least some of said digital data stored within said at least one semiconductor memory prior to generation of said weapon discharge sensor output signal and some of said digital data stored within said semiconductor memory following detection of said weapon discharge sensor output signal.

19. The data recording device of claim 16 wherein said weapon discharge sensor comprises an accelerometer mechanically coupled to said data recording device.

20. The data recording device of claim 16 wherein said weapon discharge sensor comprises a microphone.

21. The data recording device of claim 20 wherein said weapon

includes a trigger and said weapon discharge sensor comprises a switch coupled to said trigger of said weapon.

22. The data recording device of claim 21 wherein said controller is operative to cause the storage of said digital data within said at least one semiconductor memory periodically.

23. The data recording device of claim 22 wherein said controller is operative to preserve digital data associated with each of said weapon discharge sensor output signals in a separate portion of said at least one semiconductor memory.

24. The data recording device of claim 16 wherein said at least one semiconductor memory comprises at least one dynamic random access memory.

25. The data recording device of claim 22 wherein said at least one semiconductor memory comprises at least one dynamic random access memory and a non-volatile memory, said controller is operative to store said digital data within said dynamic random access memory periodically and said controller is further operative in response to said weapon discharge sensor output signal to cause selected digital data stored within said dynamic random access memory to be read from said dynamic random access memory and stored within said non-volatile memory.

26. The data recording device of claim 25 wherein said non-volatile memory comprises at least one flash memory.

27. The data recording device of claim 25 wherein said non-volatile memory comprises at least one bubble memory.

28. The data recording device of claim 25 wherein said non-volatile memory comprises an electrically erasable programmable random access memory.

29. The data recording device of claim 16 wherein said controller includes a bidirectional communications interface and said controller is operative in response to receipt of a read command having a specified password on said interface to transmit digital data preserved within said at least one semiconductor memory over said interface.

30. The data recording device of claim 29 wherein said bidirectional communications interface comprises a bidirectional serial interface.

31. The data recording device of claim 16 further comprising an enable sensor coupled to said controller, wherein said enable sensor is operative to produce a signal having a first state when said weapon is disposed within a holster and said enable sensor is operative to produce a signal having a second state when said weapon is not disposed within said holster, and said controller is operative to cause the storage of said digital data within said at least one semiconductor memory only when said enable sensor signal is in said second state.

32. The data recording device of claim 31 wherein said enable sensor comprises a switch.

33. The data recording device of claim 32 wherein said switch comprises a magnetically actuatable switch.

34. The data recording device of claim 33 wherein said magnetically actuatable switch comprises a magnetically actuatable reed switch.

35. The data recording device of claim 16 further comprising:
a clock operative to generate date and time information;
a character generator operative to generate digital representations of said date and time information; and

said controller being operative to store at least some of said digital representations of said date and time information within said at least one semiconductor memory in association with selected video image data.

36. A data recording device for preserving data, comprising:

- a sensor configured to detect an occurrence;
- a memory configured to store at least one of audio and video data such that later stored data is recorded over previously stored data;
- a non-volatile memory; and
- a controller configured to transfer the data stored in the memory to the non-volatile memory based on the detection of the occurrence by the sensor.

37. The data recording device of claim 36, wherein the controller is further configured to transfer the data stored in the memory which corresponds to a period of time beginning prior to the detection of the occurrence by the sensor and ending subsequent to the detection of the occurrence by the sensor.

38. The data recording device of claim 36, wherein:

- the occurrence is a first occurrence;
- the sensor is further configured to detect a second occurrence; and
- the controller is further configured to transfer the data stored in the memory which corresponds to a first period of time beginning prior to the detection of the first occurrence by the sensor and ending subsequent to the detection of the first occurrence by the sensor, and to transfer the data stored in the memory which corresponds to a second period of time beginning prior to the detection of the second occurrence by the sensor and ending subsequent to the detection of the second occurrence by the sensor to the non-volatile memory based on the detection of the second occurrence by the sensor.

39. The data recording device of claim 36, further comprising:
a portable housing having the sensor, the memory, the non-volatile memory, and the controller disposed therein.

40. The data recording device of claim 36, further comprising:
a weapon;
wherein the occurrence is the firing of the weapon.